

## 11/13/13    Agenda

- Warm up
- **Remediation packet for Chapter 2 is on my web site, you have until 11/15 to get it to me!**
- Review "Professor" Worksheet
- Section 3.6 day 1 - Compound Inequalities (AND)
- Homework - Worksheet 3.6 day 1

Warmup:



- Grab a slip of paper
- Put your name on it
- Distribute & CLT

$$4(2x+3) - 9x$$

$$8x + 12 - 9x$$

$$\begin{array}{r} 2x+3 \\ 4 \overline{) 8x+12} \end{array}$$

$$\begin{array}{r} +8x+12-9x \\ \hline \end{array}$$

$$\begin{array}{r} +8 \\ -9 \\ \hline -1 \end{array}$$

$$-1x + 12$$

$$-x + 12$$

Goal: Solve compound inequalities.

What is a  
"compound  
inequality"?

A compound inequality consists of two distinct inequalities joined by the word "and" or the word "or".

It is an inequality with more than one restriction.

Example:

You've all been to amusement parks and have seen the sign, "You must be at least 54" tall to ride this ride."

$$h \geq 54"$$

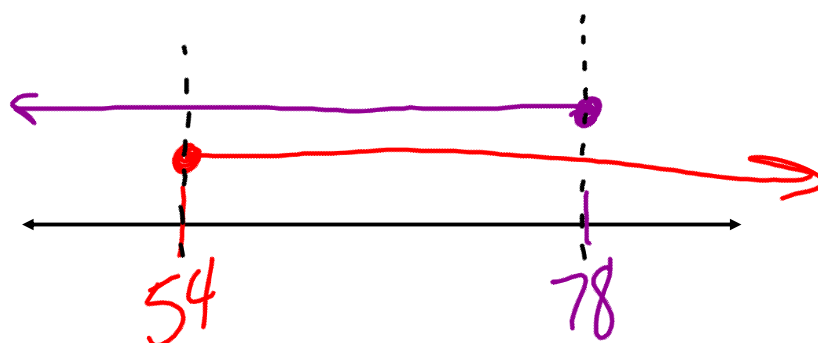
I was at Cedar Point this summer and I saw a ride with an additional restriction. "You can be no taller than 78" to ride this ride."

$$h \leq 78"$$

$$54 \leq h$$

How could we write an inequality for this situation?

How could we graph this situation?



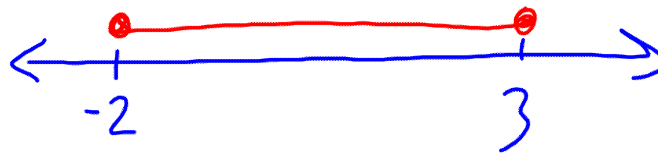
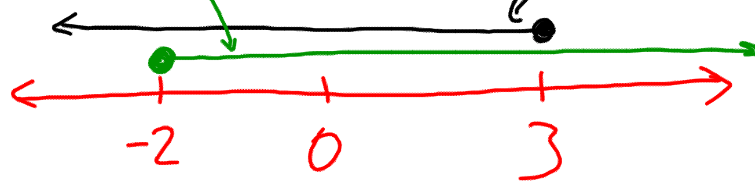
$$54 \leq h \leq 78$$

$$54 \leq h \leq 78$$

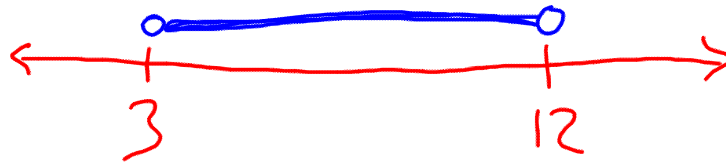
Section 3.6 - Compound Inequalities day 1 (AND)  
Target 3E

$$\{-2 \leq k \text{ AND } k \leq 3\}$$

$$-2 \leq k \leq 3$$



$$3 < h < 12$$



$$4 \leq 2h < 10$$

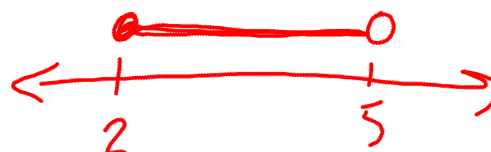
$$4 \leq 2h < 10$$

$$\frac{4}{2} \leq \frac{2h}{2} \quad \frac{2h}{2} < \frac{10}{2}$$

$$2 \leq h \quad h < 5$$

$$\frac{4}{2} \leq \frac{2h}{2} < \frac{10}{2}$$

$$2 \leq h < 5$$

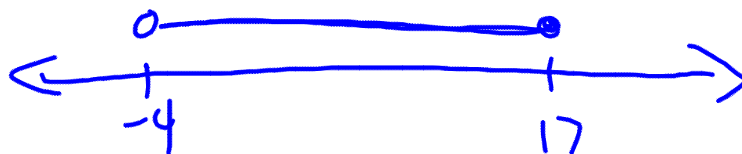
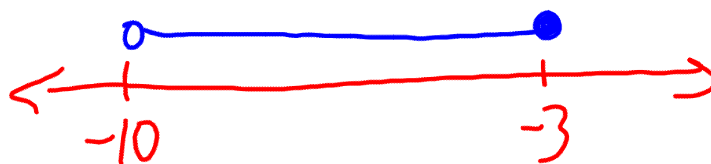


Section 3.6 - Compound Inequalities day 1 (AND)

Target 3E

$$\begin{array}{ccc} -36 < 3p + 6 & \leq & -15 \\ \underline{+6} & \underline{+6} & \underline{+6} \\ -30 < 3p & \leq & -9 \\ \underline{3} & \underline{3} & \underline{3} \end{array}$$

$$-10 < p \leq -3$$



$$x > -4 \text{ AND } x \leq 17$$

$$-4 < x \leq 17$$

$$r + 2 < 12 \text{ AND } \frac{r}{7} \geq 0$$

## Section 3.6 day 1 - Compound Inequalities (AND) Target 3E

Example 8:  
Write the  
inequality



Summary:

- "AND" inequalities are where the two inequalities overlap.
- There are 2 inequality symbols, 1 at each end. They can be different, make sure they are correct.
- Everything we know about inequalities still applies:
  - Open/Closed circles.
  - Flip the sign when multiplying or dividing by a negative number.
  - Distribute, Combine Like Terms, Reverse PEMDAS
- Follow solving rules - whatever you do to one side, do to the other.